

Commencement Address

Spring Quarter

June 10, 1988

Eric Bloch

President Jennings, Mr. Immke, members of the Board of Trustees, Class of 1988.

I am very honored to be asked to deliver this commencement address. It is an opportunity to share with you graduates one of the most important milestones of your life. We are here to celebrate with you the completion of what is commonly referred to as your educational process and to reflect on the opportunities and challenges that await you.

And, indeed, as graduates you deserve congratulations for completing a long and demanding program. But the process of education, of systematically absorbing and integrating new knowledge, does not end here. We are in the midst of a revolution, a knowledge revolution, and you will be riding the winds of change. As the old industrial era gives way to the new information economy, the ability to create new knowledge, to convert it into products and processes, and to create new industries and transform the old, is the key to world leadership and domestic well-being.

The obsolescence of knowledge and skills comes quickly today. In many fields, the half-life of knowledge is something

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like three years. It is also reflected in the inability of senior managers to supervise their computer-literate employees. It is also reflected in the disappearance of jobs that require little education. It is reflected in the appearance of new jobs that require entirely different background and education. This use you will face as professionals, parents and members of your communities will require constant awareness of how our world and work environment are changing. It will also require constant improvement, constant learning, in effect a continuing process of education.

The pressures for continuing education will be experienced most immediately by those of you in technical areas. There changes in fundamental knowledge and new approaches in tools are coming at a rapid pace. No one will escape the demands of performing at the highest capacity in a world that is increasingly competitive, a world in which knowledge is the most powerful resource, the instrument of human achievement. Coming as it does just as you are completing what is commonly understood as your education process, these observations might not be exactly what you were expecting to hear.

What are some of the changes we face? And why are they occurring?

In the course of your lifetime the world has become a very different place from what it once was. For most of our history, our political and geographic isolation, independence and

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technological leadership insured control over our own destinies and steady improvements in the quality of our life. They also permitted us certain political luxuries. The security of our frontiers and the abundance of our resources encouraged an ad hoc approach to public policy, to our institutions and to national objectives.

Today's reality is different. The world economy has been transformed. No longer isolated, we are a player. still powerful but no longer controlling in a competitive local market. World trade has increased sevenfold since 1970 and most of the goods we produce must compete against merchandise from abroad.

The reason for this transformation is simple. The rest of the world has been catching up to us. The productivity and competitive edge gained by our trading partners and adversaries alike has rested on the application of new knowledge, frequently ours. Increasingly it also rests on the creation of new knowledge generated by research of their own.

Knowledge in the modern world is the new critical commodity, as important as natural resources and access to low skill labor were in an earlier time. It has given rise to new industries such as computers, semiconductors, biotechnology and materials not found in nature. Responding to these new realities our competitors have sharply increased their investment in research and expanded their technical resource. For example, Japan and Germany have approximately doubled their technical work force in the last two decades.

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It is inevitable, perhaps, that other nations have narrowed our once substantial lead but there is also no innovative ability in our response to this new competitive reality. It is not inevitable that our productivity continue to lag or that our trade and budget deficits continue to climb. It is up to us and within our capability to face the issue and make the needed changes in our policies and in our activities.

How does this affect you? Particularly those among you in your generation who will be our future leaders? The revolution brought about by the creation of the knowledge economy has raised the stakes, now just for us but as individuals as well. Our standard of living and our security depend upon the creation of new products and processes. They depend, in other words, on your individual skills, initiative and productivity.

I would like to pose three challenges. First, become involved in both your profession and public policy. Be part of the solution, not part of the problem. That means being informed and aware of the prevailing national issues that effect us. It means having a commitment to finding viable solutions to our problems. This is information-centering and the sheer volume of information available makes it less likely that you will proceed in ignorance.

It is a more difficult task to become intelligent and thoughtful consumers of information. Edmund Fuller put it well when he said, "It is possible you may become the best informed

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generation in history, quantitatively. It is also frighteningly possible that you will turn out to be one of the worst educated generations qualitatively. You could be cursed with information without wisdom and data without direction."

The second challenge is to transform the prevailing attitude toward cooperation and competition. It is part of our basic beliefs that we have come to equate competition with all that is good, like progress, efficiency and the market economy, for very good reasons. We carry to an extreme, however, the competitive attitude--a serious drawback. On the lines of tradition, wariness, even hostility, between labor and management, industry and academia, and government and industry, making cooperation difficult. Our competitive spirit will continue to serve us well but to succeed against the challenges of the highly-competitive global economy we must supplement our competitive disposition with cooperation.

The third challenge is education, something you already thought you were finally leaving behind with today's graduation. The wise man once wrote, "All who have meditated on the art of governing mankind have been convinced that the fate of empires depends on the education of youth."

I have two points to make. One is that his observation, if anything, is even more appropriate today than ever. We have lost the luxury of getting by with a population that is illiterate or poorly educated. And technical education, far from being an

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elective component of the process, is a bedrock requirement. It is obvious requirement for those who pursue careers in it. It's also a requirement for understanding the growing list of scientific and technical issues that effect our lives. It's also a requirement for a vast array of jobs in a wide range of industry and occupations.

Yet, technical degrees at all levels, as a percentage of the total, are declining and a major international survey puts our advance placement high school students in the sciences at the bottom of the list. This is an issue that you must all face, both as citizens and as parents.

The second point I want to make about Aristotle's observation is that the education of youth is just not enough any more. Change and innovation are so pervasive that continuing education, a lifelong process, is necessary to take advantage of life's opportunities and challenges.

In describing the challenges you face, I have concentrated on the need to take an active part in the changing world, on cooperation and on education. But these challenges can't be divorced from the large context. That context is defined by the changes in world economics that I referred to earlier. Our individual destinies are directly linked to our performance as a nation. In the world arena our continued economic leadership is an integral component of our political leadership and of our ability to articulate a positive and moral vision of the future.

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Is our economic or technical decline inevitable? Some historians have argued that all great powers decline. Modern versions of this argument, reflected in books like Paul Kennedy's now popular volume on the decline of great powers, supplement the moral and cultural dimension with the focus on economic decline through military overage. Clearly the past and the experiences of other nations have much to teach us. We must be careful that we not use historical precedents as an excuse for failing to take necessary action. There is nothing inevitable about the decline of the country. That is simply what will happen if we do not act in our best interests.

The shape of the future depends on us and it requires three things. The first is vision. We must be clear about what we want to achieve and how to go about it. Second is the adaptability in the face of change. Standing by our tradition is good. Using them as a shield against reality is suicidal and we must embark on changing attitudes and institutions to recapture our vigor and our vision. Third is standards. We must hold ourselves to the highest. We must recognize the rapid advances made by the other nations and the tougher standards that determine the rules of global economic performance.

This is the stuff of leadership. And it is your leadership, thoughtful, informed and inspired, that will make the difference between growth and decline.

Thank you very much.